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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,994	06/27/2003	Rob A. Simmons	007919-087	4517

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EXAMINER	
BOMAR, THOMAS S	

ART UNIT	PAPER NUMBER
3672	

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/606,994	SIMMONS, ROB A.
	Examiner	Art Unit
	Shane Bomar	3672

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 June 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 June 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/27/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because the words "method of" appear to be unnecessarily repeated in the last sentence. Correction is required. See MPEP § 608.01(b).

2. The disclosure is objected to because of the following informalities: in the second line of paragraph [0007], the recitation of "the bit head 35" should most likely be --the bit head 23--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-4, 9, 10, 13-16, 18-20, 22, and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by US patent 6,035,953 to Rear.

Regarding claims 1 and 15, Rear discloses a bit head retaining system in Figures 1-4 that comprises a bit head 12 having an upper end and a working face 26; a driver sub (seen positioned inside element 11 of Fig. 1) having an internal opening in which the upper end of the bit head is axially movable; and a retention sleeve 14/15/16 having an internal opening in which at least a portion of the bit head above the working face and at least a portion of the driver sub are disposed, the retention sleeve portion 16 being axially immovable relative to the bit head when elements 24 and 25 are engaged, wherein the bit head is also secured to the retention sleeve so as

to be axially immovable relative to the retention sleeve in this configuration (see col. 5, lines 21-28).

Regarding claim 2, the retention sleeve is axially movable relative to the driver sub (compare Figs. 1 and 3).

Regarding claims 3, 4, and 16, a retention arrangement includes an internal recess 24 in the retention sleeve 16, an external recess in the bit head (see the recesses between splines 25 in Figs. 3 and 4), and a retention member 25 disposed in the internal recess 24 and a retention member 20 disposed in the external recess (see Fig. 1).

Regarding claim 9, a piston case 11 has an end portion, wherein an end of the driver sub is secured to the end portion (see Figs. 1 and 3).

Regarding claim 10, the retention sleeve is axially movable relative to the driver sub (compare Figs. 1 and 3).

Regarding claim 13, the end of the driver sub is secured inside the end portion of of the piston case 11 (see Fig. 1).

Regarding claim 14, the retention sleeve 14/15/16 inherently covers a gap defined between the drive sub and the bit head (see Fig. 1).

Regarding claim 18, the retention sleeve 14/15/16 includes an internal ledge for connecting the sleeve to an end of the drill casing 13 (see Fig. 1).

Regarding claim 19, the bit head is rotationally movable relative to the retention sleeve (see col. 4, lines 8-16 and lines 36-40).

Regarding claims 20 and 22, Rear discloses an inherent method of installing a bit head 12 in a percussion drill comprising inserting an upper end of a bit head 12 into an internal axial

opening at a first end of a driver sub (seen positioned inside element 11 of Fig. 1); sliding a retention sleeve 14/15/16 over a second end of the driver sub until an internal recess 24 in the retention sleeve aligns with an external recess in the bit head (see the recesses between splines 25 in Figs. 3 and 4); securing the bit head relative to the retention sleeve with a retention member 25 and 20 disposed in the external recess in the bit head and in the internal recess in the retention sleeve so that bit head is secured relative to the retention sleeve so as to be axially immovable relative to the retention sleeve (see col. 5, lines 21-28); and attaching the second end of the driver sub to a piston case 11 (see Fig. 1).

Regarding claim 23, the bit head is secured relative to the retention sleeve so that the bit head is rotatable relative to the retention sleeve (see col. 4, lines 8-16 and lines 36-40).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 5, 6, 9, 11, 12, 17, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rear in view of US patent 5,647,447 to Jones.

Regarding claims 5, 17, and 21, Rear teaches the bit head retaining system and retention arrangement of claims 4 and 16, and the method of installing a bit head of claim 20, wherein the retention arrangement includes a retention member. It is not taught that the retention member is a split ring.

Jones teaches a bit head retaining system and retention arrangement similar to that of Rear. It is further taught that the retention arrangement includes an internal recess in the retention sleeve 42, an external recess in the bit head, and a retention member 50 disposed in the internal recess, wherein the retention member is a split ring 60 (see Fig. 1 and col. 2, line 60 through col. 3, line 17). It would have been obvious to one of ordinary skill in the art, having the teachings of Rear and Jones before him at the time the invention was made, to modify the retention arrangement taught by Rear to include the split ring of Jones, in order to obtain a retention system that will retain the bit head if it became separated from the shank (see col. 1, lines 7-10 of Jones). One would have been motivated to make such a combination since Jones has shown it to be notoriously known in the art to use split rings as a way of retaining a bit head in the tool in case of the head breaking away from the shank.

Regarding claim 6, Rear teaches the bit head retaining system of claim 1 that includes a retention sleeve that has an internal flange to cooperate with an external flange on element 15 to limit axial movement of the sleeve. It is further taught that the driver sub has an external flange, wherein the external flange cooperates with hammer 11 and not directly with the internal flange of the sleeve (see Fig. 1). Therefore, it is not explicitly taught that the external flange on the driver sub and the internal flange on the retention sleeve together limit the axial movement of the sleeve relative to the driver sub.

Jones teaches a bit head retaining system similar to that of Rear. It is further taught that an external flange 44 on the driver sub 10 and an internal flange on the retention sleeve 42 together limit the axial movement of the sleeve relative to the driver sub (see Fig. 1). It would have been obvious to one of ordinary skill in the art, having the teachings of Rear and Jones

before him at the time the invention was made, to modify the driver sub taught by Rear to interact with the internal flange of the retention sleeve as seen in the arrangement of Jones, in order to obtain an alternative retention system that would serve the same purpose. One would have been motivated to make such a combination since Jones has shown it to be notoriously known in the art to engage an external flange of a driver sub with an internal flange of a retention sleeve to limit the axial movement of the sleeve relative to the driver sub, and since Rear teaches the need for limited axial movement of the sleeve relative to other parts of the system.

Regarding claims 9, 11, and 12, Rear teaches the bit head retaining system of claim 1 that includes a retention sleeve. It is not explicitly taught that the system further comprises a piston case having an end portion, wherein an end of the driver sub is secured to the end portion, and further wherein axial movement of the sleeve relative to the driver sub is limited by the piston case.

Jones teaches a bit head retaining system similar to that of Rear. It is further taught that a piston case 14 has an end portion, wherein an end of the driver sub 10 is secured to the end portion, and further wherein axial movement of the sleeve relative to the driver sub is limited by the piston case (see Fig. 1 and col. 2, lines 53-59). It would have been obvious to one of ordinary skill in the art, having the teachings of Rear and Jones before him at the time the invention was made, to modify the retaining system taught by Rear to include the piston case 14 that limits axial movement of the sleeve relative to the driver sub of Jones. One would have been motivated to make such a combination since Jones has shown it to be notoriously known in the art to limit the axial movement of a retention sleeve with a piston case, and since Rear teaches the need for limited axial movement of the sleeve relative to other parts of the system.

7. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rear in view of US patent 5,065,827 to Meyers et al.

Rear teaches the bit head retaining system of claim 1 that includes a bit head and a driver sub. It is not explicitly taught that the bit head has external splines and the driver sub has internal splines that correspond to the external splines, or that a piston case has an end portion with internal threads, and wherein the driver sub has external threads, the external threads of the driver sub mating with the internal threads of the end portion.

Meyers et al teach a bit head retaining system similar to that of Rear. It is further taught that the bit head has external splines 63 and the driver sub 44 has internal splines that correspond to the external splines (see Fig. 2 and col. 13-15), and that a piston case 41 has an end portion with internal threads 42, and wherein the driver sub has external threads 43, the external threads of the driver sub mating with the internal threads of the end portion (see Fig. 2). It would have been obvious to one of ordinary skill in the art, having the teachings of Rear and Meyers et al before him at the time the invention was made, to modify the retaining system taught by Rear to include the splines and threads of Meyers et al, in order to obtain a retention system that ensure that the bit remains coupled to the hammer at all times (see col. 1, lines 7-10 of Meyers et al). One would have been motivated to make such a combination since Meyers et al have shown it to be notoriously known in the art to use the spline and thread arrangements taught by Meyers et al in bit head retention systems.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Cox and Pascale et al teach other bit retention systems of interest.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shane Bomar whose telephone number is 703-305-4849. The examiner can normally be reached on Monday - Thursday from 7:00am to 4:30pm. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bagnell can be reached on 703-308-2151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David J. Bagnell
Supervisory Patent Examiner
Art Unit 3672

tsb
November 8, 2004